CERTIFICATE OF MAILING BY "EXPRESS MAIL" I hereby certify that this correspondence is being deposited with the US service under 37 CFR 1.10, Express Mail Label No. EL 873 071 129 US Patent Application, Washington, D.C. 20231 on the date shown below:	s and addressed to the, Commissioner for Palerius, box
Date: August 24, 2001 By:	Kay L. Gaviglio PATENT Docket No. GC525-2D1
In Re Application: Jones et al.))) Group Art Unit: Not Assigned
Serial No.: Not Assigned) Examiner: Not Assigned
Filed: August 24, 2001))
For: CHEMICALLY MODIFIED MUTANT ENZYMES AND METHODS FOR PRODUCING THEM, AND SCREENING THEM FOR AMIDASE AND/OR ESTERASE ACTIVITY	,))))

Information Disclosure Statement

Commissioner for Patents Washington, DC 20231

Sir:

Applicants submit herewith patents, publications or other information (listed on the attached Form PTO-1449 and attached thereto) of which they are aware, that they believe may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR §1.56.

This Information Disclosure Statement:

first Office Action on the merits.

§1.97(a).
three r	is filed within three months after the filing date of the application or within nonths after the date of entry into the national stage of a PCT application forth in 37 CFR §1.491.
(c)	as far as is known to the undersigned, is filed before the mailing date of a

(a) accompanies the new patent application submitted herewith. 37 CFR

(d) is filed after the first Office Action and more than three months after the application filing date or PCT national stage date of entry filing but, as far

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	rejection either the specified Deposit A Informati herewith	wn to the undersigned, prior to the mailing date of either a final or a notice of allowance, whichever occurs first, and is accompanied by fee (\$180.00) set forth in 37 CFR §1.17(p) or a certification as in 37 CFR §1.97(e), as checked below. Authorization to charge Account No. 07-1048 in the amount of \$180.00 to cover the cost of this on Disclosure Statement is provided in the Transmittal Letter submitted in duplicate.						
	allowance Transmit No. 07-1 as specificanside	ifiled after the mailing date of either a final rejection or a notice of e, whichever occurred first, and is accompanied by authorization (in the stal Letter submitted herewith in duplicate) to charge Deposit Account 048 the fee (\$180.00) set forth in 37 CFR §1.17(I)(1) and a certification fied in 37 CFR §1.97(e), as checked below. This document is to be red as a petition requesting consideration of the Supplemental tion Disclosure Statement.						
IIf either of b	oxes (d)	or (e) is checked above, the following "certification" under 37 CFR						
81 97(e) may	need to	be completed.] The undersigned certifies that:						
31.07(0,000)	Each item of information contained in the Information Disclosure Statement was cited in a communication mailed from a foreign patent office counterpart foreign application not more than three months prior to the filing this Information Disclosure Statement.							
	was cite foreign	No item of information contained in this Information Disclosure Statement ed in a communication mailed from a foreign patent office in a counterpart application or, to the knowledge of the undersigned after making able inquiry, was known to any individual designated in 37 CFR §1.56(c) han three months prior to the filing of this Information Disclosure ent.						
		to the district to the Office in a prior						
These paten	its and pu	blications were previously cited by or submitted to the Office in a prior						
		. 09/234,956 filed July 15, 1999, and relied upon in this application for an						
earlier filing	date unde	er 35 USC 120.						
A concise e	volanation	of relevance of the items listed on PTO-1449 is:						
A concise of		not given						
		given for each listed item						
		given for only non-English language listed item(s)						
	[] foreign releva	in the form of an English language copy of a Search Report from a n patent office, issued in a counterpart application, which refers to the int portions of the references.						

Serial No. not assigned Page 3

The Examiner is reminded that a "concise explanation of the relevance" of the submitted prior art "may be nothing more than identification of the particular figure or paragraph of the patent or publication which has some relation to the claimed invention." MPEP §609.

While the information and references disclosed in this Information Disclosure Statement may be "material" pursuant to 37 CFR §1.56, it is not intended to constitute an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

In accordance with 37 CFR §1.97(b), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR §1.56(a) exists. It is submitted that the Information Disclosure Statement is in compliance with 37 CFR §1.98 and MPEP §609 and the Examiner is respectfully requested to consider the listed references.

Respectfully submitted,

Richard T. Ito

Registration No. 32,242

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Date: August 24, 2001

U.S. PATENT DOCUMENTS

U.S. DEPARTMENT OF COMMERCE

PATENT AND TRADEMARK OFFICE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use several sheets if necessary)

(PTO-1449)

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF
							APPRO- PRIATE
	1	5,208,158	05/04/1993	Bech et al.			
	2	5,244,791	09/14/1993	Estell			
	3	5,316,935	05/31/1994	Arnold et al.			
	4	5,316,941	05/31/1994	Estell et al.		ļ.,	
	5	5,403,737	04/04/1995	Abrahmsen et al.			
	6	5,629,173	05/13/1997	Abrahmsen et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANS- LATION IF APPRO- PRIATE
	7	WO 91/16423		PCT			
 	8	WO 96/27671		PCT			
	9	EP 0 328 229 A1		Europe			

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		OTHER DOCOMENTS (metalang : 2000)							
	10	Plettner et al., "A Combinatorial Approach to Chemical M	Modification of Subtilisin Bacillus Ientus," <u>Bioorganic &</u>						
		Medicinal Chemistry Letters, 8:2291-2296 (1998)							
	11	DeSantis et al., "Chemical Modifications at a Single Site (Can Induce Significant Shifts in the pH Profiles of a Serine						
		Protease," J. Am Chem. Soc., 120:8582-8586 (1998)							
	12	DeSantis et al., "Site-Directed Mutagenesis Combined wit	th Chemical Modification as a Strategy for Altering the						
		Specificity of the S1 and S1' Pockets of Subtilisin Bacillus Ientus, "Biochemistry, 37: 5968-5973 (1998)							
 	13	Reschand et al. "Altering the Specificity of Subtilisin B.	Lentus by Combining Site-Directed Mutagenesis and Chemical						
	13		Modification," Bioorganic & Medicinal Chemistry Letters, 6:2507-2512 (1996)						
 		Research "Chemical Modifications of a Cysteinyl Resid	due Introduced in the Binding Site of Carboxypeptidase Y by						
	14	Site-Directed Mutagenesis," Carlsberg Res. Commun., 5							
<u> </u>		Site-Directed Mulageness, Carabberg Area Chambers Modification of Protein Thiols:	Formation of Mixed Disulfides," Methods in Enzymology,						
	15	Wynn et al., "Chemical Modification of Protein Thiols: Formation of Mixed Disulfides," Methods in Enzymology,							
		251:351-356 (1995)	DATE CONSIDERED						
EXAMINER			DAID COMBD						
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				Sheet 2 of 8			
	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	A. DOCKET NO.		SERIAL NO.			
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	(use several sheets if necessary)	FILING DATE		GROUP ART UNIT			
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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPRO- PRIATE

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANS- LATION IF APPRO- PRIATE

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

	16	Bonneau et al., Alteration of the Specificity of Subtilisin	BPN' by Site Directed Mutagenesis in Its S ₁ and S ₁ ' Binding						
		Sites," J. Am. Chem. Soc., 113:1026-1030 (1991)							
	17	Gloss et al., "Examining the Structural and Chemical Fl	exibility of the Active Site Base, Lys-258, of Escherichia coli						
		Aspartate Aminotransferase by Replacement with Unnat	ural Amino Acids," <u>Biochemistry</u> , 34:12323-12332 (1995)						
	18	Wynn et al., "Mobile Unnatural Amino Acid Side Chains in the Core of Staphylococcal Nuclease," Protein Science							
		5:1026-1031 (1996)							
	19 Berglund et al., "Chemical Modification of Cysteine Mutants of Subtilisin Bacillus Lentus Can Create Better Cata								
		Than The Wild-Type Enzyme," <u>J. Am. Chem. Soc.</u> , 119	:5265-5266 (1997)						
	20	Gron et al., "A Highly Active and Oxidation-Resistant S	ubtilisin-Like Enzyme Produced by a Combination of Site-						
		Directed Mutagenesis and Chemical Modification," Eur. J. Biochem., 194:897-901 (1990)							
	21	Bech et al., "Significance of Hydrophobic S ₄ -P ₄ Interacti	ons in Subtilisin 309 from Bacillus Lentus," Biochemistry,						
		32:2847-2852 (1993)							
	22	Wynn et al., "Unnatural Amino Acid Packing Mutants o	Mutants of Escherichia Coli Thioredoxin Produced by Combined						
		Mutagenesis/Chemical Modification Techniques," Protein	n Science, 2:395-403 (1993)						
	23	Wynn et al., "Comparison of Straight Chain and Cyclic	Unnatural Amino Acids Embedded in the Core of						
		Staphylococcal Nuclease," Protein Science, 6:1621-1626	(1997)						
	24	Kawase et al., "Effect of Chemical Modification of Tyro	sine Residues on Activities of Bacterial Lipase," <u>Journal of</u>						
		Fermentation and Bioengineering, 72:317-319 (1991)							
EXAMINER			DATE CONSIDERED						

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			COMMERCE	'A DOCKET NO. SERIAL NO.					deet 3 of 8	
PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE			CE 200649/2030 (GC525-2) 09/234,956							
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	!			-						
			ОТНЕ	R DOCUME	NTS (including A	uthor, Title, Date, Pertinent P	ages, Etc.)			
		25	Raia et al., "/	Activation of	Sulfolobus Solfat	taricus Alcohol Dehydrogenase	by Modific	ation o	f Cysteine Resid	ue 38 with
			Iodoacetic Aci	d," Biochen	nistry, 35:638-647	(1996)				
		26	Ramachandra	n et al., "St	abilization of Bar	star by Chemical Modification	of the Bur	ied Cys	steines," <u>Biochen</u>	nistry,
			35:8776-8785	(1996)			181			
		27	Davies et al.,	"A Semisynt	hetic Metalloenzy	yme Based on a Protein Cavity	That Catal	lyzes th	e Enantiosleectiv	e
			Hydrolysis of	Ester and A	mide Substrates,'	" J. Am. Chem. Soc., 119:1164	3-11652 (1	997)		
		28	Polgar et al.,	"A New Enz	yme Containing a	a Synthetically Formed Active	Site. Thiol	-Subtili	sin," <u>Journal of</u>	American
			Chemical Soci	ety, 88:3153	-3154 (1966)				-	
		29	Stewart et al.,	"Catalytic	Oxidation of Dith	iols by a Semisynthetic Enzym	e," <u>J. Am.</u>	Chem.	Soc., 108:3480-3	1483 (1986)
		30	Radziejewski (et al., "Cata	lysis of N-Alkyl-1	,4-Dihydronicotinamide Oxida	tion by a F	lavopaj	pain: Rapid Read	tion in All
			Catalytic Step	s," <u>J. Am. (</u>	Chem. Soc., 107:3	3352-3354 (1985)				
		31	Hilvert et al., "A Highly Active Thermophilic Semisynthetic Flavoenzyme," J. Am. Chem. Soc., 110:682-689 (1988)							
		32	Hilvert et al.,	"New Semis	ynthetic Flavoenz	zymes Based on a Tetrameric F	rotein Ten	iplate,	Glyceraldehyde-	3-
			Phosphate Del	nydrogenase	" J. Am. Chem.	Soc., 107:5805-5806 (1985)				
		33	Rokita et al.,	'Synthesis a	nd Characterizat	ion of a New Semisynthetic En	zyme, Flav	olysozy	me," <u>J. Am. Ch</u>	em. Soc.,
			108:4984-4987	(1986)						
		34	Kokubo et al.,	"Flavohem	oglobin: A Semis	ynthetic Hydroxylase Acting in	the Absen	ce of R	eductase," <u>J. An</u>	ı. Chem.
			Soc., 109:606-	607 (1987)						
		35	Suckling et al.	, "Carbon-C	Carbon Bond For	mation Mediated by Papain Ch	nemically M	lodified	l by Thiazolium	Salts,"
	ŀ	Bioorganic & Medicinal Chemistry Letters, 3:531-534 (1993)								

DATE CONSIDERED

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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	AY. DOCKET NO. 200649/2030 (GC525-2)		SERIAL NO. 09/234,956
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	APPLICANT		
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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPRO- PRIATE

FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANS- LATION IF APPRO- PRIATE

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

	36	Di Bello, "Total Synthesis of Proteins by Chemical Methods: The Horse Heart Cytochrome C Example," Gazzetta
		Chimica Italiana, 126:189-197 (1996)
	37	O'Connor et al., "Probing an Acyl Enzyme of Selenosubtilisin by Raman Spectroscopy," J. Am. Chem. Soc., 118:
		239-240 (1996)
	38	Peterson et al., "Nonessential Active Site Residues Modulate Selenosubtilisin's Kinetic Mechanism," Biochemistry, 34:
		6616-6620 (1995)
	39	Bell et al., "Kinetic Studies on the Peroxidase Activity of Selenosubtilisin," Biochemistry, 32:3754-3762 (1993)
	40	Peterson et al., "Selenosubtilisin's Peroxidase Activity Does Not Require an Intact Oxyanion Hole," <u>Tetrahedron</u> ,
		53:12311-12317 (1997)
	41	Wu et al., "Conversion of a Protease into an Acyl Transferase: Selenolsubtilisin," J. Am. Chem. Soc., 111:4514-4515
		(1989)
	42	House et al., "1H NMR Spectroscopic Studies of Selenosubtilisin," <u>Biochemistry</u> , 32:3468-3473 (1993)
	43	Valenzuela et al., "Kinetic Properties of Succinylated and Ethylenediamine-Amidated δ-Chymotrypsins," <u>Biochim.</u>
		Biophys. Acta, 250:538-548 (1971)
	44	Siddiqui et al., "Arthrobacter D-Xylose Isomerase: Chemical Modification of Carboxy Groups and Protein Engineering
	"	Of pH Optimum," Biochem. J., 295:685-691 (1993)
	45	Kuang et al., "Enantioselective Reductive Amination of α -Keto Acids to α -Amino Acids by a Pyridoxamine Cofactor in
	43	A Protein Cavity," J. Am. Chem. Soc., 118:10702-10706 (1996)
		West et al., "Enzymes as Synthetic Catalysts: Mechanistic and Active-Site Considerations of Natural and Modified
	46	
		Chymotrypsin," J. Am. Chem. Soc., 112:5313-5320 (1990)
EXAMINER		DATE CONSIDERED

PATENT AND IRADEMARK OFFICE PROPARATION DISCLOSURE STATEMENT BY APPLICANT (use several sheets if necessary) (PTO-1449) BY CPTO-1449) CPTO-1449 CPTO-1449 CPTO-1449 DOCUMENT DATE DATE NAME CLASS SUBCLASS SUBCLASS SUBCLASS DATE FOREIGN PATENT DOCUMENTS FOREIGN PATENT DOCUMENTS FOREIGN PATENT DOCUMENTS COUNTRY CLASS SUBCLASS SUBCLASS CAPPLICANT DATE PRIA FOREIGN PATENT DOCUMENTS COUNTRY CLASS SUBCLASS CAPPLICANS FOREIGN PATENT DOCUMENTS COUNTRY CLASS SUBCLASS CAPPLICANS THAT APPRA APPRA APPRA APPRA PRIA COUNTRY CLASS SUBCLASS CAPPLICANS THAT COUNTRY CLASS SUBCLASS CAPPLICANS COUNTRY CLASS SUBCLASS CAPPLICANS COUNTRY CLASS SUBCLASS CAPPLICANS CAPPLICANS COUNTRY CLASS SUBCLASS CAPPLICANS CAPPLICANS APPRA APPR	U.S. DEPARTM	ENT (OF COMMERCE	Ov n	OCKET NO.		-			Sheet 6 of 8		
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Jones et al.	INFORMAT STATEMEN	ION D	ISCLOSURE APPLICANT		09/234,956							
(PTO-1449) FILING DATE January 21, 1999 U.S. PATENT DOCUMENTS U.S. PATENT DOCUMENTS U.S. PATENT DOCUMENTS EXAMINER INITIAL DOCUMENT NUMBER DATE NAME CLASS SUBCLASS FILING DATE APPEN FOREIGN PATENT DOCUMENTS FOREIGN PATENT DOCUMENTS DOCUMENT NUMBER DATE COUNTRY CLASS SUBCLASS SUBCLASS LATER APPEN OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.) OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.) 56 Akabas et al., "Acetylcholine Receptor Channel Structure Probed in Cysteine-Substitution Mutants," Science, 258: 307-310 (1992) 57 Jonualia, "Bit-Directed Fluorescence Labeling of P-Glycoprotein on Cysteine Residues in the Nucleotide Binding Domains," Bit-Directed Fluorescence Labeling of P-Glycoprotein on Cysteine Residues in the Nucleotide Binding Domains," Binchemistry, 35:11865-11873 (1996) Forlingons et al., "Cysteine-Seaming Mutagenesis of Helix II and Flanking Hydrophilic Domains in the Lactose Permease of Excherichia coll." Biochemistry, 36:269-273 (1997) Significant of Cysteine Residues, "Lysteine-Food Chem., 40:356-362 (1992) Kirley, "Reduction and Fluorescent Labeling of Cyst(e)ine-Containing Proteins for Subsequent Structural Analyses," Analytical Biochemistry, 180:231-236 (1989) 60 Buckwalter et al., "Improvement in the Solution Stability of Porcine Somatotropin by Chemical Modification of Cysteine Residues," J. Agric. Food Chem., 40:356-362 (1992) Analytical Biochemistry, 180:231-236 (1989) 61 Nikhimura et al., "Reversible Modification of the Sulfhydryl Groups of Escherichia coli Succinic Thiokinase with Methanethiolating Reagents, 5,5°-Dithio-bis/C-Nitrobenzoic Add), p-Hydroxymercuriberrosite, and Ethylmercuribiosalicytale," Archives of Biochemistry, 19-6129-6137 (1980) Worku et al., "Identification of Histidyl and Cysteinyl Residues Essential for Catalysis by 5'-Nucleotidase," FEBS			Diczny i									
U.S. PATENT DOCUMENTS U.S. PATENT DOCUMENTS U.S. PATENT DOCUMENTS EXAMINER INITIAL DOCUMENT NUMBER DATE NAME CLASS SUBCLASS SUBCLASS DAT IF APPR APPR PRIA DOCUMENT NUMBER DATE COUNTRY CLASS SUBCLASS LATIC APPR PRIA OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.) OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.) 56 Akabas et al., "Acetylcholine Receptor Channel Structure Probed in Cysteine-Substitution Mutants," Science, 258: 307-310 (1992) 57 Liu et al., "Site-Directed Fluorescence Labeling of P-Glycoprotein on Cysteine Residues in the Nucleotide Binding Domains," Biochemistry, 35:11865-11873 (1996) 58 Frillingos et al., "Cysteine-Scanning Mutagenesis of Helix II and Flanking Hydrophilic Domains in the Lactose Permease of Escherichia coli," Biochemistry, 36:269-273 (1997) 59 Kirley, "Reduction and Fluorescent Labeling of Cyst(e)ine-Containing Proteins for Subsequent Structural Analyses." Analytical Biochemistry, 180:231-236 (1989) 60 Buckwalter et al., "Improvement in the Solution Stability of Porcine Somatotropin by Chemical Modification of Cysteine Residues," 1, Agric, Feed Chem., 40:356-362 (1992) Nishimura et al., "Reversible Modification of the Sulfrydry IG roups of Escherichia coli Succinic Thiokinase with Methanctholating Reagents, 5,5'-Dhitho-bis(2-Nitrobenzole Acid), p-Hydroxymercuribemzoate, and Ethylmercurithicsalicylate," Archives of Biochemistry and Biophysics, 170:461-467 (1975) Thiok by Potentiometric Difference Titration," Biochemistry, 19-6129-6137 (1980) Morkine et al., "Identification of Histidyl and Cysteinyl Residues Essential for Catalysis by 5'-Nucleotidase," EEBS Letters, 167:235-240 (1984)	(use several	sheets	if necessary)									
EXAMINER NITIAL DOCUMENT NAME NAME CLASS SUBCLASS FILE	(PTO-1449)							GRO	UP ART UNIT			
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FOREIGN PATENT DOCUMENTS FOREIGN PATENT DOCUMENTS FOREIGN PATENT DOCUMENTS DOCUMENT NUMBER DATE COUNTRY CLASS SUBCLASS LATR IT APPR PRIA OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.) 56 Akabas et al., "Acetylcholine Receptor Channel Structure Probed in Cysteine-Substitution Mutants," Science, 258: 307-310 (1992) 57 Liu et al., "Site-Directed Fluorescence Labeling of P-Glycoprotein on Cysteine Residues in the Nucleotide Binding Domains," Biochemistry, 35:11855-11873 (1996) 58 Frillings et al., "Cysteine-Scanning Mutagenesis of Helix II and Flanking Hydrophilic Domains in the Lactose Permease of Escherichia coli," Biochemistry, 36:269-273 (1997) 59 Kirley, "Reduction and Fluorescent Labeling of Cyst(e)ine-Containing Proteins for Subsequent Structural Analyses." Analytical Biochemistry, 180-231-236 (1989) 60 Buckwalter et al., "Improvement in the Solution Stability of Porcine Somatotropin by Chemical Modification of Cysteine Residues," J. Agric. Food Chem., 40:356-362 (1992) 61 Nishimura et al., "Reversible Modification of the Sulfhydryl Groups of Escherichia coli Succinic Thiokinase with Methanethiolating Reagents, 5,5'-Dithio-bis/2-Nitrobenzoic Acid), p-Hydroxymercuribenzoate, and Ethylmercurithiosalicylate," Archives of Biochemistry and Biophysics, 170-461-467 (1975) 62 Lewis et al., "Determination of Interactive Thiol Ionizations in Bovine Serum Albumin, Glutathione, and Other Thiols by Potentiometric Difference Titration," Biochemistry, 19-5129-6137 (1980) 63 Worku et al., "Identification of Histidyl and Cysteinyl Residues Essential for Catalysis by 5'-Nucleotidase," FEBS Letters, 167:235-240 (1984)					U.S. PATEN	T DOCUMENTS						
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		55 Smith et al.,	, "Nonessenti	iality of the Activ	ve Sulfhydryl Group of Rabbit	Muscle C	reatine	Kinase," The Jou	rnal of	
		Biological C	hemistry, 24	9:3317-3318 (197	(4)					
	-	66 Roberts et a	Roberts et al., "Reactivity of Small Thiolate Anions and Cysteine-25 in Papain Toward Methyl							

	65	Smith et al., "Nonessentiality of the Active Sulfhydryl Gr	oup of Rabbit Muscle Creatine Kinase," The Journal of
		<u>Biological Chemistry</u> , 249:3317-3318 (1974)	
	66	Roberts et al., "Reactivity of Small Thiolate Anions and C	Cysteine-25 in Papain Toward Methyl
		Methanethiosulfonate," Biochemistry, 25:5595-5601 (1986	0
	67	Pardo et al., "Cysteine 532 and Cysteine 545 Are the N-Et	thylmaleimide-Reactive Residues of the Neurospora Plasma
		Membrane H ⁺ -ATPase," The Journal of Biological Chem	nistry, 264:9373-9379 (1989)
	68	Hempel et al., "Selective Chemical Modification of Huma	an Liver Aldehyde Dehydrogenases E_1 and E_2 by
		Iodoacetamide," The Journal of Biological Chemistry, 25	6:10889-10896 (1981)
	69	Daly et al., "Formation of Mixed Disulfide Adducts at Cy	steine-281 of the Lactose Repressor Protein Affects Operator
		And Inducer Binding Parameters," Biochemistry, 25:546	8-5474 (1986)
	70	Bodwell et al., "Sulfhydryl-Modifying Reagents Reversib	ly Inhibit Binding of Glucocorticoid-Receptor Complexes to
		DNA-Cellulose," <u>Biochemistry</u> , 23:1392-1398 (1984)	
	71	Alvear et al., "Inactivation of Chicken Liver Mevalonate	5-Diphosphate Decarboxylase by Sulfhydryl-Directed
		Reagents: Evidence of a Functional Dithiol," Biochimica	et Biophysica Acta, 994:7-11 (1989)
	72	Miller et al., "Peroxide Modification of Monoalkylated C	Slutathione Reductase," The Journal of Biological Chemistry,
		266:19342-19360 (1991)	
	73	Soper et al., "Effects of Substrates on the Selective Modi	ification of the Cysteinyl Residues of D-Amino Acid
		Transaminase," The Journal of Biological Chemistry, 25	4:10901-10905 (1979)
	74		ne Binding Sites in the Nicotinic Receptor Probed by Reactions
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		75	1			f Cysteinyl, Lysyl a		Residues (of Mou	ıse Liver 17β-Hy	droxysteroid	
				Dehydrogenase," <u>Biochimica et Biophysica Acta</u> , 1120:144-150 (1992)								
		76	Huang et al.,	luang et al., "Improving the Activity of Immobilized Subtilisin by Site-Specific Attachment to Surfaces," Anal. Chem.,								
-			69:4601-4607 (1997)								
		77	Brocklehurst,	"Specific Co	valent Modificati	on of Thiols: Appl	ications in th	ne Study o	f Enzy	mes and Other		
			1		:hem., 10:259-274					· · · · · · · · · · · · · · · · · · ·		
		78	Bruice et al., "	uice et al., "Novel Alkyl Alkanethiolsulfonate Sulfhydryl Reagents. Modification of Derivatives of L-Cysteine,"								
					ry, 1:47-58 (1982				-		cme,	
		79	Smith et al., "	Simple Alka	nethiol Groups fo	r Temporary Block	ing of Sulfh	odrvi Gro	une of	Engange " Ricci	!	
			14:766-771 (19				me or com.	yuiyi Gio	ups v.	Chrymes, Dive	nemistry,	
		80	Polgar, "Spect	rophotometr	ic Determination	of Mercaptide Ion,	on Activate	J Farm of	en c	· ····· · · · · · · · · · · · · · · ·	•	
					or mercaphic rou,	an Atuvan	d FOLIN VI	311-0	roup in 1 moi En	zymes,"		
		81	FEBS Letters, 38:187-190 (1974) Konigsberg, "Reduction of Disulfide Rends in Proteins with District to the No. 1 to 1 to 2 to 2									
	 -	82	Konigsberg, "Reduction of Disulfide Bonds in Proteins with Dithiothreitol," Methods in Enzymology, 25:185-188 (1) Kenyon et al., "Novel Sulfhydryl Reagents," Methods Enzymol., 47:407-430 (1977)							-188 (1972)		
+		+										
		83		Kluger et al., "Amino Group Reactions of the Sulfhydryl Reagent Methyl Methanesulfonothioate. Inactivation of								
		1				action with Amines						
		84	Kaiser, "Catal	ytic Activity	of Enzymes Alter	ed at Their Active	Sites," Ange	w. Chem.	Int. I	Ed. Engl., 27:913	-922 (1988)	
EXAMINER	t					DATI	E CONSIDEI	RED				